

Powering Advanced Medical Applications: *Challenges, Compliance and Innovation*



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Horizon Electronics – About Us

- Horizon Electronics Ltd. stands as a beacon of excellence in the world of power-supply solutions, with a rich history spanning more than five decades and extensive proven expertise in the development, manufacturing, and delivery of advanced power solutions.
- Our commitment to innovation, precision, and quality has established us as a trusted partner across a wide range of sectors, including industrial, medical, defense, and more.



50+ years of Experience



Thousands of products and systems - Delivered



Strong in-house R&D capabilities



Tested, proven & highly reliable



Wide range of power – from 1W to 1MW



All power – Solutions under on roof

Key Challenges Facing Power Supplies in Medical Applications

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- ❖ **Strict Safety Requirements**
Compliance with medical safety standards, low leakage current, and reinforced isolation.
- ❖ **High Electrical Reliability**
Uninterrupted power for critical devices - zero tolerance for downtime.
- ❖ **Power Quality & Stability**
Protection against surges, transients, and noise affecting sensitive medical equipment.
- ❖ **Space & Thermal Constraints**
Compact, efficient designs suited for limited space and controlled thermal environments.
- ❖ **Scalability & Flexibility**
Power architectures that support future expansion and evolving clinical needs.
- ❖ **Regulatory Compliance**
Full adherence to IEC 60601-1, EMC standards, and medical certification requirements.

Medical Applications

- Portable Oxygen Concentrator
- Patient Monitoring
- Lasers, DNA Sequencer
- CPAP
- Medical Beds
- Dialysis Equipment
- Mobile Workstation
- Ultrasound
- CT
- Radiology
- And many other Applications



Medical Operation tables

- Factors for Success**
- Medical approval 60601 4th edition
 - Low leakage Current
 - Low noise, controlled fan.



Skin Beauty Equipment

- Factors for Success**
- Proven Reliability
 - Low leakage current
 - PMBus for system communications
 - Low fan noise



Robotic Surgical Systems

- Factors for Success**
- Active Current Sharing for redundancy
 - PMBus for system communications
 - Proven Reliability



Radiology

- Factors for Success**
- Medical approval 60601 4th edition
 - Low leakage Current
 - Low noise, controlled fan.



Hematology/ Chemistry analyzer

- Factors for Success**
- Conformal Coating
 - Low Noise
 - Medical approval
 - Low leakage current



Robotic Surgical Systems

- Factors for Success**
- High Power 2000W on smallest footprint
 - PM-Bus for system communications
 - Medical approval
 - Low leakage current

Overview of Medical Power Supplies Solutions



Specs and Technical Information

MEP - 600A Key Specification and Feature

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MEP - 600A



76.2 x 127 x 37 mm
3" x 5" x 1.46"

Open Frame Medical Power Supply :

- MEP-600AXXJ BRA (Open Frame)

Key Features :

- GaN based technology
- Up to 450 W output with natural convection cooling
- 5V/2A standby for medical auxiliary equipment
- Wide Operating temperature -20C to +80C
- Current sharing function

Safety Standard :

IEC/EN/UL 60601, IEC/EN/UL 62368
CE, UKCA, CCC, IEC/EN 60335-1, IEC/EN 61558-1 (Compliance)

Target Applications:



Ultrasound



Ventilator



IVD



Operating Table

MDP520 Medical Grade Power Supplies

Key Features :

- 90 – 305 VAC universal input voltage range
- 460 W rated power, 330 W free-air cooled
- High efficiency to 94.5%
- 24, 36, 48 & 56 VDC standard output variants
- +5V 1 A stand-by output
- Active PFC, EN 61000-3-2
- Class C, >20% load
- Low earth leakage current
- Safety certification process ongoing



Target Applications:



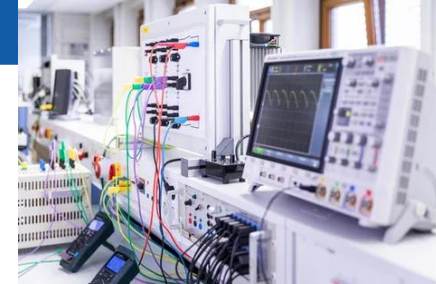
Dental Chairs



Dental Electronics



Surgical Tables



Lab/Analysis Equip

MEP - 500A Key Specification and Feature

MEP – 500A



76.2 x 127 x 33 mm
3" x 5" x 1.3"

Enclosed Medical Power Supply :

- MEP-500AXXJ BRA (Open Frame)

Key Features :

- High output power for different medical equipment
- 5V/2A standby for medical auxiliary equipment
- High EFT capability provides clear images for diagnostic equipment
- Applicable to Class I / II system

Safety Standard :

IEC/EN/UL 60601, IEC/EN/UL 62368
CE, UKCA, CCC, IEC/EN 60335-1, IEC/EN 61558-1 (Compliance)

Target Applications:



Ultrasound



Endoscope



Ventilator

MEP - 200A Key Specification and Feature

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MEP - 200A  DELTA



62.8 x 111.2 x 32.5 mm
3" x 5" x 1.46"

Enclosed Medical Power Supply :

- MEP-200AXXJ B (Open Frame)
- MEP-200AXXJ C (Open Frame with Cover)

Key Features :

- Up to 200W output with natural convection cooling
- Applicable to Class I / II system with Low leakage Current
- Wide Operating temperature -30C to +70C
- Class B Conducted and Radiated EMI

Safety Standard :

IEC/EN/UL 60601, IEC/EN/UL 62368
CE, UKCA, CCC, IEC/EN 60335-1, IEC/EN 61558-1 (Compliance)

Target Applications:



Ultrasound



Oxygen
Concentrator



Defibrillator



Breast Pump

MDP200 Medical Grade Power Supplies

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Enedo 

Key features

- Wide input voltage range 90 – 264 VAC
- Steady 200 W with forced air
- 160 W with free air cooling
- IEC protection Class I & Class II configurations
- Compact form factor 2 x 4 x 1.48"
- High efficiency 93.5%
- 12, 24 & 48 VDC standard output variants
- Low earth/touch leakage currents
- Low no-load power consumption (<0.3W)
- 12V auxiliary, 0.5A output
- 2x MoPP – BF compatible

Target Applications:

- Diagnostic medical equipment
- Medical pumps & ventilators
- Dialysis devices
- Home healthcare appliances
- Medical monitoring systems
- Portable medical equipment

MEB – 1K5A Key Specification and Feature

MEB-1K5A



127 x 204 x 40.5 mm
5" x 8.03" x 1.59"

Enclosed Medical Power Supply :

- MEB-1K5A24T AAA
- MEB-1K5A48T NAA

Key Features :

- 1500W @ 180-264Vac and 1200W @ low line
- 5V/2A standby, Active Current Sharing
- Operate from -20C to +70C
- Low acoustic noise for noise sensitive equipment

Safety Standard :

IEC/EN/UL 60601, IEC/EN/UL 62368
CE, UKCA, CCC, IEC/EN 60335-1, IEC/EN 61558-1 (Compliance)

Target Applications:



Ultrasound



MRI Machine



Portable X-Ray
Equipment



Therapy
Machine

Surgical Light

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Key Features:

- Large installation space for ceiling mounting
- Two power supplies for main and auxiliary lights
- Fan cooling for prolonged usage
- 12V auxiliary fan power is needed
- Optional open frame / U frame type power supply
- Universal 100-240Vac input voltage
- Certified with medical standard IEC 60601-1

Applicable Models:



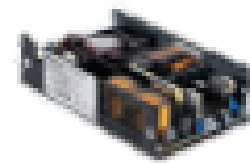
MEP

500W (24V)
600W (24V)



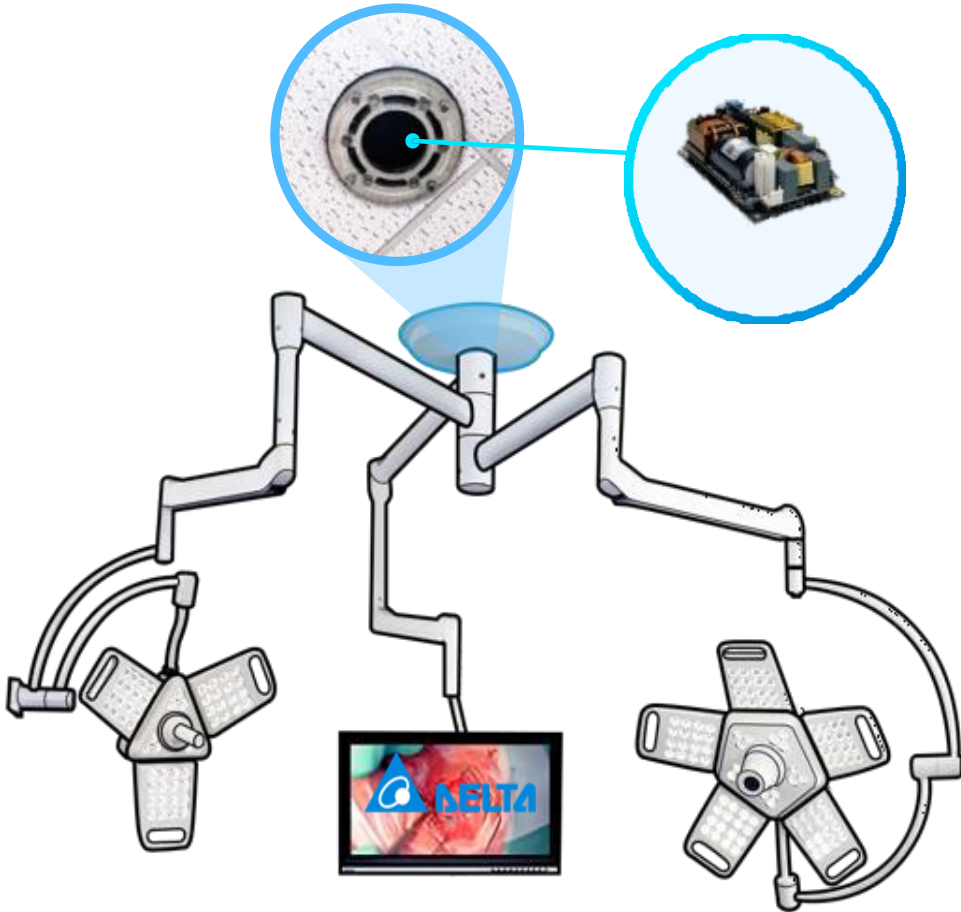
MDS

300W (24V)
400W (24V)
500W (24V)



MEU

600W (24V)
650W (24V)



LPM300 Medical Grade Power Supplies

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Enedo

Key features

- 85 – 264 VAC Universal input voltage range
- 300 W rated power
- 1.00" low profile package actor (32.1 W/in³)
- High efficiency (up to 94%)
- No-load low power consumption < 0.3 W for all output variants
- Low earth leakage current (<300 μ A)
- Over temperature protection, auto-recovery
- Output over voltage latch off protection
- IEC safety installation Class I and Class II
- Certified to the latest IEC/EN/ANSI-AAMI 60601-1 edition
- Medical safety approval to IEC 60601-1 3rd edition, 2xMoPP protection grade BF appliances compatible.
- (EU directive 2015/863)
- 5 years warranty

Target Applications:

- ❖ Diagnostic equipment
- ❖ Imaging equipment
- ❖ Portable devices
- ❖ Therapy appliances
- ❖ Dental equipment
- ❖ Dermatology aesthetic medicine



MEB Series



Application: PCB Testing Machine

Product: MEB-2k5A24T NAA

Winning Factors

- Remote on/off
- Reverse Inhibit



Application: Test and measurement Product

Product: MEB-1K2A48

Winning Factors

- Low leakage current
- Compact Size



Application: laser systems for minimally invasive treatments

Product: MEB-1K5A24J

Winning Factors:

- Low leakage current
- 2 x MOPP Isolation

MEA Series



Application: Medical Skin care
Product: MEA-065A19CA-A
Winning Factors

- Compact size
- Low Leakage current



Application: Circulation Pump
Product: MEA-160A24C GAA
Winning Factors

- Meet Efficiency Level VI / VII & CoC Tier 2
- Low leakage current



Application: Ultrasound
Product: MEA-250A24CA-A
Winning Factors



Application: CPAP
Product: MEA-160A24C GAA
Winning Factors

- Meet Efficiency Level VI / VII & CoC Tier 2
- Low leakage current



MEA Series



Thank you!

Visit Horizon's booth for further professional discussion